STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

Norman H. Bangerter, Governor
Dee C. Hansen, Executive Director
Dianne R. Nielson, Ph.D., Division Director

355 W. North Temple • 3 Triad Center • Suite 350 • Salt Lake City, UT 84180-1203 • 801-538-5340

September 9, 1986

Mr. Gordon Ziegler
Ziegler Chemical and Mineral
Corporation
100 Jericho Quad
Jericho, New York 11753

Dear Mr. Ziegler:

Re: Consolidated Mining Plan, ACT/047/013, Uintah County, Utah

The Division has reviewed the Consolidated Mining Plan (CMP) for the Ziegler gilsonite mines, submitted July 16, 1986. While the CMP is a good first step in a consolidated plan, providing information on all properties to be brought together under one mining permit, it does not contain the technical detail regarding the operational or reclamation phase of mining that is necessary before a mine permit can be issued.

Attached are the Division's comments as to what specific information is required to make the plan approveable. Each comment is referenced to a regulation number in the Utah Mined Land Reclamation Act (Title 40-8, Utah Code Annotated 1953). Please feel free to contact me if you have any questions in responding to these comments. The Division will be glad to provide further clarification or examples on any point.

Sincerely,

Susan C. Linner

Susan C. Linner
Reclamation Biologist/
Permit Supervisor

jvb
Attachment
cc: Gayle McKeachnie, Nielsen & Senior
B. Team
0028R-53

Initial Completeness Review

Ziegler Chemical and Mineral Corporation
ACT/047/013
Uintah County, Utah

September 10, 1986

Rule M-3 Notice of Intention to Commence Mining Operations - DWD, RPS

(1)(a) The applicant shall submit a complete map of sufficient scale to clearly show the locations of lands affected by mining operations or proposed operations since July 1, 1972 or as described under "Lands Affected" Rule M-2(d). Total area affected in acres shall be given.

(1)(b) On a map show all inactive and active mines sites for each area. Indicate the dates the sites were mined. Maps should be of sufficient scale to clearly define each mine site.

(1)(d) Submit a map that clearly shows the locations of all lakes, rivers, reservoirs, streams, creeks, springs, roads, buildings, transmission lines and other structures.

(1)(e) The application does not include a drainage plan for the areas from which the overburden or topsoil will be or has been removed.

(1)(f) On a map of sufficient scale, show the locations of bore holes, oil, gas, and water wells on and adjacent to the mine areas. Map scale should be at least 1:62,500. The applicant shall identify all areas mined since July 1, 1977 or described under "Lands Affected" Rule M-2(d).

The application does not include information relative to the depth of the various water bearing strata encountered in test borings or mining to date. If none exist, the application should justify the statement with locations of borings and/or a description of mining completed to date.

(1)(h) The applicant shall describe the regional groundwater system, how mining affects or influences the groundwater system, where and how much water is contacted in the mines, the quality of the groundwater, and how groundwater is planned to be discharged should be presented, including NPDES permits for all current and anticipated point sources of discharge.

Rule M-3 Notice of Intention to Commence Mining Operations - JRH

A reclamation map should be provided showing the location and type of revegetation work to be accomplished on the site. This map could be made in conjunction with the disturbed area map.

(1)(g) The operator needs to provide the location and extent of storage areas for topsoil, overburden and other waste or rejected material generated on site.

(2)(d) The operator shall provide a comprehensive plan including mass balances for the determination of topsoil stripping and distribution and redistribution of overburden and waste materials for the site. Maps should be provided showing the post mining and the post reclamation contours for the site as well as any cross sections that may be appropriate. The operator has provided preliminary maps and information regarding this but will have to provide more specific information for at least the first five year permit term.

(5) All exploratory drilling and related functions shall be included in the application under the requirements of M-3(5) and specific information related to all holes presently drilled or proposed be presented as detailed in M-3(5)(a)thru(d).

Report form MR-9 shall also be filed with the Division for all mineral exploration work undertaken and approved within the limits of this rule. It shall not be filed in lieu of reporting requested under Rule M-8.

All holes made as step outs to an initial proposed drilling program should be described in (a) through (d) above to the Division as soon as possible. The additional information may be filed as an addendum to the original notice and will not require approval.

Rule M-3 Notice of Intention to Commence Mining Operations - JSL

(2)(c) The operator must describe the manner in which topsoil is stored at each mine site. This description shall include the maximum slopes, cross-sections and contours of all topsoil stockpiles. To insure the proper depth of the

plant supporting materials, the operator must include a commitment to measure redistributed topsoil at the time of reclamation.

(2)(c)(2) The operator has stated in attachments C and D of the mine plan that no toxic or acid producing overburden materials exist. However, in attachment F, page 1 of 3 of the MR-2 and attachment D, page 1 of 3 of the MR-2 the overburden waste materials have been classified as acid or alkali producing. This discrepancy must be clarified through analysis and presentation of the overburden data within the mine plan.

Sampling need only be done in those areas where overburden will be disposed of. Analysis shall include but not be limited to the following parameters: pH, texture, calcium carbonate percentage, sodium, calcium, magnesium, sodium adsorption ratio (SAR), and electrical conductivity (EC). If the analysis proves the material to be acidic or toxic (ie. SAR greater than 15) the operator must describe the manner and location in which the overburden material will be disposed, the volume of the fill area, projected cross sections before and after the overburden is backfilled and disposed of, and the manner in which plant supporting soil materials will be placed over the overburden. The operator must insure that soil materials are not lost through the voids within the disposed overburden. This may be accomplished by running a grader several times over the overburden material.

Attachment E of the mine plan does not contain any narrative as to the possible disposal of waste rock. Please amend.

(2)(d) The Division recommends that the operator implement contour furrows in all reclamation areas that exceed a 2:1 slope.

(2)(f) The operator must include a timetable for each major task to be accomplished. For example, how much time would lapse between topsoil redistribution and reseeding?

Rule M-3 Notice of Intention to Commence Mining Operations - LK

(2)(a) & (b) The applicant must provide a statement of known prior and current land uses, the capability of the surface resources to support a variety of uses and the possible uses of the land following termination of mining.

(e) The applicant must provide a revegetation plan for the areas affected, including:

1. species to be planted or seeded and the stocking or seeding rate for each species.

2. type and rate of mulch to be used.

3. methods to be used in planting/seeding and mulching.

4. timing, including approximate dates for seeding/planting.

Rule M-5 - Surety Guarantee - JRH

Under the intent of the Mined Land Reclamation rules and regulations, the operator must provide a contingency for abandonment of the mine site in the form of a Surety Guarantee as prescribed in Rule M-5.

Design, estimates and drawings for reclamation activities should be made for at least the term of the mine permit, and if possible for the life of the mine. Regardless of the expected life of the mining operations, reclamation plans and cost estimates must be provided. Bonding calculations and surety as well as the detailed information for mining operations are usually based on a 5-year permit term, especially for long life-of-mine operations.

In order for the Division to determine the amount of surety to be provided, the operator must first submit a complete reclamation plan. Bonding requirements for the permit will be based on the worst case conditions during the permit term and the Division's costs to perform reclamtion. In order to determine the worst case conditions during the permit term the operator must provide sufficient plans of operations as detailed under Rule M-3. Quantities of various reclamation activities should be based on and provided in information given in Form MR-1.

The basis for the surety amount will be the quantities and the scope of work as required in the reclamation plan. In order to determine the amount required for reclamation, productivity calculations for equipment and unit costs must be determined.

Reference materials used by the Division in bond cost estimating are; the "RENTAL RATE BLUE BOOK," the "MEANS SITE WORK COST DATA" and "CATERPILLAR PERFORMANCE HANDBOOK". These documents will be the source of data for finalizing cost estimates. The Cat Book gives the productivity rates for each size of equipment manufactured by Caterpillar. The Cat Book also gives a selection of operational factors that affect machine production. Each of these adjustment factors must be considered for use in the final calculations. Likewise, the Blue Book presents the cost of renting various pieces of equipment used in the mining industry, particularly those used for earth work in reclamation activities. These costs range from hourly to monthly costs. In addition, the hourly operation costs must be included to account for fuel consumption and maintenance costs. The Blue Book cost does not include operator costs. The Means Book is used to determine labor and operator costs. As with the Blue Book rental rates for equipment, labor costs must also be estimated at subcontractor rates with overhead and profit included. The Means Book provides labor rates with these factors included. Additionally, inflation factors for bond estimates are derived from Means Cost Data. Inflation rates for construction during the previous three years are averaged and applied to the cost estimate as an inflation factor.

The operator may use other sources of information to determine reclamation cost. The estimate provided by the operator shall contain as a minimum, the quantities, equipment selection, productivity and general methodology used in determining the reclamation cost estimate. The basis or methodology used by the operator shall be referenced and sufficient calculations and drawings should be provided by the operator so that a final cost estimate can be made and the amount determined for surety by the Division.

The amount of the surety bond may be updated when changes to the mining plan or operation occur or at such time when the Division determines that changes in construction costs, escalation or other such factors warrant adjustment of the bond amount. The operator may request informal review and discussion of the bond amount and how it was determined at any time within the life of the permit.

Rule M-6 Plans and Maps - DWD

The applicant shall submit a description of the regional geology accompanied by geologic maps, cross-sections and references.

The geologic description should also depict the geologic setting in relationship to mining areas.

Geologic maps and cross-sections shall detail formations, attitudes of formations, structural features such as faults, folds, fracture zones, exploration drill holes, oil wells, gas wells and water wells.

Submit generalized longitudinal and cross-sectional diagrams of a typical mine section.

Rule M-6 Plans and Maps - JRH

Additional maps and plans should be provided which depict the post mining and the post reclamation contours for the site including the mill and tailings areas and other areas disturbed as a result of mining activities.

As Exhibit "A" of the surety bond, the operator is required to provide a legal description of the affected area. This may be accomplished by furnishing a true and correct map of the area locating the affected areas included in the bond amount and their respective acreages.

The Operator shall submit to the Division, sufficient contour maps and/or cross sections to determine the following:

1. The location and disposition of all waste materials generated from the mining and processing operations.

2. The post mining contours of the area, sufficient in detail to determine surface drainage patterns, final slopes of the area, and sufficient details to determine earth work calculations required for regrading for reclamation bonding cost estimates.

3. The location, depths, quantities and area extent for topsoil and non-toxic cover materials sufficient in order to determine mass balance quantities for the earth work and for estimates for earth work calculations.

4. In areas where the post mining contours shall vary significantly from the post reclamation contours, the Operator shall provide contours and/or cross sections sufficient to determine the amount of material required for earth work calculations.

Rule M-10(1) Land Use - JRH

The operator must include in the reclamation plan, provisions for post-mining land use compatible with probable land uses on abandonment.

Rule M-10(2) Public Safety and Welfare - DWD

The applicant shall describe the process for closing mine openings, shafts and drill holes. Maps should be submitted to depict the location of sites to be closed and cross sections submitted to illustrate the methods to be used.

Rule M-10(2) Public Safety and Welfare - JRH

(b) The operator needs to address the disposal of trash and debris in the mine plan. The operator should propose a plan for and commit to a disposal plan for waste materials incidental to mining and that plan should be in accordance the the Rules and Regulations of the State Division of Health.

(c) The operator has not submitted in the reclamation plan, any proposal or plans for the plugging and capping of drill, core, or other explanatory holes as set forth in Rule M-3(5).

(e) The operator should provide information as to what safety measures are being implemented for protection around shafts or other excavations at the site.

Rule M-10(3) Impoundments - JRH

The operator has not provided in the drainage plans, measures used to regrade impounding areas to be self-draining. Sufficient detail in the reclamation plan to prevent permanent impoundments from occurring on the site must be provided.

Rule M-10(4) Slopes - JRH

As part of the reclamation plan, the operator shall, if possible, regrade all waste piles and fills to a rounded configuration and to such slopes so as to minimize safety hazards and erosion. Such fills or waste piles need to be identified by the operator. The operator should also estimate and quantify final size and configuration of both the cuts and the waste piles for at least the permit term.

Plans for fills and waste piles should also include a description of proposed drainage control, surface erosion control, and vegetation to be used for stabilization of the slopes. Grading of the material should be such that the slopes and the terrain blend in with the surrounding natural terrain.

Rule M-10(7) Roads and Pads - JRH

The operator has provided information as the the type and procedures used for developing and maintaining roads within the

permit area. Reclamation of roads and pads should be addressed in the plan. Although the expected mine life makes it difficult to determine final configuration and details, the operator should consider existing and proposed roads and pads for the permit term.

Roads used for and in conjunction with the mining operations should be included in the affected area.

Rule M-10(7) Roads and Pads - RPS

The application must contain a description of the reclamation of all mining related roads relative to provisions for adequate surface drainage, erosion protection, and unrestricted drainage crossings. Drainage plans for all roads should be based upon a design event equivalent to a 10 yr. - 24 hr. precipitation event.

Rule M-10(8) Drainages - JRH

The Operator has not sufficiently addressed concerns regarding the ultimate layout for the facilities. Drawings and designs will be required indicating the expected ultimate contours for reclamation including the establishment of surface drainage and water diversions. Post reclamation conditions for drainage and surface water control have not been sufficiently addressed.

Rule M-10(8) Drainages - RPS

The application does not contain information relative to crossing and/ or blocking natural drainage routes. If no such activity is or will occur, then the application must demonstrate this contention with adequate maps and descriptions of the site. The applicant must present plans for the removal of any current or proposed drainage structures.

Rule M-10(9) Structures and Equipment - JRH

The operator needs to identify and commit to demolition and removal of all structures, utility connections, equipment and debris prior to regrading and abandonment. Plans and estimates for the demolition and removal of such facilities shall be included as part of the reclamation cost estimate for the site. Approval may be granted for continuing or post mining land use for structures and equipment as may be appropriate.

Rule M-10(11) Sediment Control - RPS

The application must contain plans for control of sediment from all disturbed areas. It is recognized that sediment control structures for this area will be minimal (i.e. berms, silt fencing and straw bales). Sedimentation ponds will not be required at the current sites.

Rule M-10(12) Revegetation - LK

The applicant must provide an estimate of vegetation cover (using professionally accepted methods) for the Cottonwood Area (Attachment "E") and the Ziegler Federal #1 Weaver Area.

Rule M-10(13) Dams - RPS

The plan must contain information relative to any foreseen tailings dams, water storage and supply dams, and sedimentation ponds relative to design, operation and reclamation.

Rule M-10(14) Soils - JSL

Fertility

The operator has committed to test the soil at the time of reclamation. However, no soil fertility analysis was included within the mine plan at this time. In order to develop a comprehensive reclamation plan the applicant must analyze the soil materials. Because of the wide soil diversity throughout the mining area, no generic fertilizer plan would be possible. The applicant must specify a fertilizer management plan for each mine location. Both the disturbed soils and the undisturbed soils at each disturbed mine site plus the soils at each undisturbed mine site must be analyzed for the following parameters: pH, electrical conductivity, calcium, magnesium, sodium, sodium adsorption ratio, texture, available phosphorus, and saturation percentage.

Storage

Pursuant to the previous comment in Rule M-3 (1)(g) and (2)(c) the soil stockpiling plan must include the following:

A) The manner in which topsoil will be excavated, stockpiled, and redistributed.
B) The depth of removal, acreage and volume of soil stockpiled for each corresponding site.
C) A commitment that all stockpiled soil will be in level locations, protected from wind, water erosion, vehicular traffic and contaminants.
D) Description of maximum slopes and shape.
E) Commitment to rehabilitate the soil stockpile by seeding and fertilization. Include fertilizer, seed mix and rates.

Redistribution

The soil redistribution plan must include equipment, methodology, volumes and the depth of redistribution for each mine site. Only the Weaver Canyon mine plan included a topsoil redistribution depth. The operator iterates that all other sites will have soil redistributed (but no depths given) where possible. Please define the reasons why and the locations where soil redistribution is not possible. How will the operator ensure a suitable growth medium in those locations where the soil will not be redistributed? For all other mine sites please include the depths of soil redistribution. If these areas include onsite "disturbed soils" for final reclamation, a specific soil management plan shall be devised for each location. These plans would be dependent on the previously mentioned soil analysis. It would be advisable to rip these areas to a depth of ten to twelve inches and possibly incorporate an organic amendment for physical enhancement of the soil. The exact organic amendment would depend on the fertility analysis.

0898R